GREEN SUPPLY CHAIN PERFORMANCE MEASUREMENT FRAMEWORK:

An Exploratory Study

Research Proposal submitted in partial fulfillment of the requirement for the Degree of

DOCTOR OF PHILOSOPHY

IN

MANAGEMENT

By

Shruti D. Vadukiya

2014phdmgmt007

Under the Guidance of

Dr. Anupam Saxena

Associate Professor

JK Lakshmipat University,

Jaipur

October - 2015

Anupam
25.01.16

25/1/2016

Table of Contents

S.No	Chapter Outlines	Page
1	Introduction	3
2	Review of Literature	4- 13
3	Rational of the study	13
4	Research Objective	14
5	Research Methodology	14 -15
6	Scope of Study	16
7	Research Limitation	16
8	References	17 -18

Introduction

In today's global world environmental issues are rapidly becoming important topic for supply chain management and most organizations are growing towards green supply chain concept in their business to achieve environmental sustainability and to improve green performance as a lower the cost, short lead time, and high quality product. They have realized the greater benefit of green technology adoption in business operations, which also affects to customers and suppliers (Abu Seman, 2012) & (Mutingi, Mapfaira, & Monageng, 2014) GSCM is an environment sustainability practices and deals with Green manufacturing and technologies which provide solution as a green products and its mainly deals with activity of Recycling, Remanufacturing and reuse of the material (Anil S. Dube & R. r.gawand) also environmental level GSCM can be defines as the transparent, integration, strategic and achievement of organization's social, environmental, and economic objectives in the systemic coordination in business process for improving the long term performance of the any firm and its supply chain partners. (Wu, Dunn, & Forman, 2012) It is directly linked to environment protection along with the strategy, and also linked with logistics and waste management process (Kudroli, 2014) the consciousness of environmentalist in the last few decades all the people are aware of the world's environmental problem like global warming, decrease in non-replenish resources and toxic substance usage.(Toke, Gupta, & Dandekar, 2010) GSCM is an integrating supply chain management and the key Indicator to implement is product design, manufacturing processes, delivery of the final design, material sourcing, for manufacturing processes product to the customer and end of life management if the product after its useful life.(Rostamifard, Shekari, & Eslami, 2014).Modern Industrialist has acknowledged the importance of GSCM and showed environmental concern to win and preserve great advantage to enhance their organization performance in that instance it has been found that Tata Motors produce bricks as a byproduct from the wastes generated from their routine production and found that to implement GSCM practices five dimension namely ,Internal environment management, Eco Design, Green Purchasing, Co operation with customers and Investment recovery can be measured.(Ganeshkumar & Mohan, 2015)

Review of Literature

Green Supply Chain Management

"Green Supply Chain refers to the manner during which innovations in supply chain management for the industrial buying and it also considered within the context of the environment" (Duarte, Cabrita, & Machado, 2011) found it is connected with the environmental questions based on green purchasing to be integrated into life-cycle management supply chains flowing from supplier, through manufacturer, customer, and closing the loop with reverse logistics. (Toke et al., 2010) recognized that Green supply Chains aims to balance promoting performance with environmental problems to satisfy with challenges like energy conservation and pollution abatement, enterprises have tried to inexperienced their supply chains, that is, to form networks of suppliers to buy environmentally superior merchandise or to create common approaches to waste reduction and operational efficiencies. Greening the availability chain is progressively a priority for several business enterprises and a challenge for provision management within the twenty first century. Of specific concern is the way to arouse structure environmental awareness and place environmental activities into observe within the provision activities of their supply chains (Kumar & Chandrakar, 2012).GSCM chains look for to balance promoting performance with environmental problems of supply chain management involves finance flow, supply flow, data flow, integration, relationships, and environmental management, promoting potency and activity between partners, facilitates environmental performance, borderline waste and value savings. Thus it's a crucial supply of the organizations' to achieve competitive benefits. (Duarte et al., 2011)

Green supply chain management Implementation & practices

(Kudroli, 2014) and (Mutingi et al., 2014) Identified that effective Green supply chain management is implemented more systematically using the strategic framework of GSCM in which (**Green Supply Chain Management (GSCM) = Green Product Design + Green Purchase + Green Manufacturing Process + Green Marketing +Reverse Logistics)(RL)** (Hervani, Helms, & Sarkis, 2005) described in context to this equation shows reverse supply "closes the loop "of a typical forward supply chain and includes reuse, remanufacturing and recycling of materials into new materials or alternative products with value within the

marketplace. The idea is to eliminate or minimize waste (energy, emissions, chemical/hazardous, solid wastes) this figure is representative of one organization's internal supply chain, its major operational components and also the linkage to external organizations. variety of environmentally aware practices area unit evident throughout the supply chain varying from green design marketing, green procurement practices(e.g. certifying suppliers, purchasing environmentally sound materials/products), total quality environmental management (internal performance measurement and pollution prevention), environment friendly packaging and transportation, to the various product end-of-life practices defined by the "Re's" of reduce, reuse, remanufacturing, recycling.

Green product Design

(Gardas & Narkhede, 2013) aforementioned that the first factor what company might need to consider for green Product design is redesigning the product and itself to own a smaller impact on the environment and consume less energy in manufacturing, distribution or use. Simple changes can have big implications in concern to who are energy efficient, World Health Organization use organic fertilizers, and use recyclable materials and materials that are biodegradable and one can take a recent look into the supplier base to begin reducing the overall supply chain footprint. It has been found that environmentally conscious design (ECD) is generally concerned with the method for evaluating and assessing the environmental activity health and resource consequences of a product through all phases of its life(Kudroli, 2014).

Green Material Management

(Mutingi et al., 2014) Commented that these are concerned with purchasing environmentally friendly materials and products, certification of potential suppliers, total quality environmental management (pollution prevention, internal performance measurement and auditing), environmentally friendly Packaging and distribution. Material recovery, reuse, and recycling are put in place so that all purchasing procedures satisfy environmental quality prices, suppliers with greener practices will facilitate reduce the environmental impact of transportation products to promote .standards (Kudroli, 2014). The best practice to be considered in green supply chain management is replacing the hazardous material or the process by the one that appears to be less problematic.

Green Marketing and Distribution

Green marketing is a commitment from the organization to touch upon environmentally friendly product (i.e., product that do not damage society and also the environment) and to conduct promoting activities in a very means that reflects the organization's commitment to environmental responsibility through adherence to specific controls to make sure the preservation of the natural setting (Gardas & Narkhede, 2013) Implementation of green marketing philosophy brings an organization close to its purchasers, particularly those purchasers who have other environmental concerns besides maintaining the environment and rationalizing the use of natural resources (Mutingi et al., 2014)found green distribution involves the application of green packaging practices that encourage the use of standard reduced packaging, recyclable materials, returnable packaging methods, and promotion programs on recycling and reuse in addition, green distribution encourages the utilization of energy-efficient distribution ways that minimize energy usage, carbon emissions, and transportation prices (Kudroli, 2014) recognized that green advertising is given primary importance within the green marketing concept. Green advertising is defined as any advertisement that presents a company image of environmental responsibility, supports a green mode with or without highlighting a product. Another aspect in Greening of supply chain management is green distribution. Green distribution is based on green transportation and defined as "transportation service that includes a lesser or reduced negative impact on human health and also the natural environment in comparison with competitive transportation services that serve an equivalent purpose"

Green Manufacturing Practices

In order to have a complete concept of green manufacturing, along with the product designs, the issues involving manufacturing should also be addressed the main objective of green manufacturing is to reduce the use of virgin material because it indirectly reduces the amount of waste at the manufacturing stage (Kudroli, 2014) Emission reduction is another significant aspect of green manufacturing. There are two primary emission reduction means which are; (1) management, emissions and effluents are at bay, stored, treated and disposed of using pollution management equipment; or (2) prevention, emissions and effluents are reduced, changed or prevented altogether through better work, material substitution, recycling or process innovation.(Mutingi et al., 2014) defines efficient product design and production processes that

use inputs with low environmental impacts, capable of manufacturing minimal or no waste nor pollution green product design ensures that the amount of elements in a product is minimized, assembly and activity processes are simplified, and material recovery, reuse and recycling are increased. In addition, green manufacturing consists of environmentally friendly processes that minimize raw material usage, energy usage, wastes, and emissions. The end results of green remanufacturing is reduced material costs, energy costs, occupational safety expenses, as well as improved production efficiency and company image.

Reverse Logistics

Reverse logistics incorporates the return of materials, components and products back into the "forward logistics "chain and incorporating reverse distribution and resource reduction (Toke et al., 2010) established complete definition for reverse logistics is that the Return upstream movement or a good or material resulting from reuse, recycling, or disposal with the minimization of waste which results in more efficient forward and reverses distribution processes. Reverse logistics operations include the following major steps: collection, separation, compression or disassembly.

Green Supply Chain Management in Developed Countries

(AbuSemanat al., March 2012) Defined that economic characteristic is financial gain per capita. Countries with high financial gain or gross domestic product per capita may be categorized as developed countries. Then, developed countries consistent with industrial enterprise characteristic are the tertiary and quaternary sectors of trade. Another recently live, the Human Development Index (HDI) integrate associate economic live, country financial gain, with indices for expectancy and education developed countries may be outlined from this characteristic as those have the next HDI rating. Thus, the developed countries are believed to touch upon countless environmental problems and depletion issues as a result of their increasing economic development. Most researchers conducted their study in developed countries to look at the mixing of environmental construct.(Toke et al., 2010) found many researchers studied green supply chain management for pressures, practices and performance inside the Chinese automobile trade and Thailand They discovered that increasing pressures from a selection of directions improve both their economic and environmental performance.(R. Bhoof at al, Nov

2013) explained that greening the supplier through green innovation leads to important edges to the environmental performance and competitive advantage of the firm. It conjointly focused on totally different dimensions of practices as well as green procurement, internal environmental management, eco style, customer cooperation, and investment recovery. (Toke et al., 2010)studied the green supply chain management in the electronic trade in that they mentioned varied approaches for implementing Green Supply Chain Concept as a green supply chain management practices, even so no investigation on responsible and validity of such approaches confirmed that GSCM study is based on mostly eco style, green producing and packaging, environmental participation, green marketing, stock and suppliers.(AbuSemanat al., March 2012)shows that most researchers have studied the GSCM are implemented in developed countries such as Japan, Germany, Portuguese, UK and Taiwan and so on and even though limited studies have examined the GSCM practices in developing countries.(Ali, S. S., &Om. A.,1984)outlined for India, regarding 75% of total number of units within the producing sector are engaged in Food & beverages, textiles, mineral products, chemical products, nonmetallic and machinery & equipment and that are top five verticals in terms of number of units. It's unfortunate that a majority of the companies within the Asian nation producing sector still go on in an exceedingly cycle of low productivity and low value-add products in comparison to other countries which are comparable. when we compare manufacturing value added per capita in India, it's only83 USD compared to USD 496 in China, USD 749 in Brazil and USD 1,001 in Mexico.

Environmental Performance Index (EPI)

(Gardas & Narkhede, 2013) found the effectiveness of national environmental protection efforts in 132 countries and belief that on the-ground results area unit the best way to track policy effectiveness, EPI indicators concentrate on measurable outcomes like emissions or deforestation rates. Each indicator can be linked to well establish policy targets. As per 2012 EPI ranks 132 countries on 22 performance Indicators that capture the best worldwide environmental data available on a country scale. Rank of India lies at 125 of 2012 , that is that the worst rank India is lagging far behind in environmental performance as indicated in 2010 Environmental Performance Index (EPI).It has been Observed India has ranked at 123 position in EPI report 2010. Environmental Performance Index (EPI) has been made by a team of specialists from

university and Columbia University and was free on 28.1.2010. A total of 163 countries are ranked as per this. It has been observed that critical data gaps have limited the ability to live performance on a number of important issues. However the above fact, the relatively lower rank of India appears to result to its huge population which exerts immense pressure on the atmosphere.

Performance Measurement Factors (PMF)

(Mutingi et al., 2014) has identified that total quality control, cost control, communities and environmental regulations are main factors of performance measurement of any organization It may influence the decision of measurement at different level. The performance measures may: i) Financial measures are appropriate for strategic decision and ii) Non-financial measures might be more proper for operational decisions. So it is important to develop a performance measurement system. (Duarte et al., 2011) The list of Financial and non financial factors explained in Table.1

Financial Factors	Non Financial Factors
Labor Cost	Water pollution/Waste water; Solid waste
Total Sale	Hazardous/harmful/toxic materials
Return on asset	Inventory levels; Scrap rate
Operational Cost	Customer satisfaction
Training cost	Product quality, On Time Delivery
Return on Invest	Air emission
Profit	Effectiveness; Flexibility; Green image

Table.1 The list of Performance Measurement Factors (Duarte et al., 2011)

Performance Measurement Systems (PMS)

Interest on performance measurement has day by day increased within the last twenty years. Organizations have realized that for competitive in the present world, dynamic business surroundings, continuous observation of its performance measurement is important. Performance measurement has been recognized as a vital part to boost business performance that specialize in performance of the corporate alone isn't sufficient; there's a necessity to specialize in the performance measurement of the SC during which company could be a partner several authors have outlined PMS in SC with varied approaches and context PMS as dynamic system that

allows support of decision-making processes by gathering, elaborating and analyzing data found by (Kurien, G. P., & Qureshi, M. N., 2011).The GSCM practices has helped firm to achieve superior performance is supported by many literatures and all over that GSCM performance as combination of environmental performance (e.g. reduction in greenhouse emission, SO_2, NOx., converting waste into more helpful product, reuse or recycling after use, increase in product quality, increase in customer satisfaction) and business performance (e.g., increase in market share, increase in profitability, improvement in Inventory Turnover etc.)(Ali, S. S., & Om. A., 1984) has conducted PMS study and constructed questionnaire for 175 companies. Out of 175 questionnaires only 54 questionnaires were filled after several follow up with respective companies. This represents 31% total. Environmental performance indicators are core requirements of a GSCM/PMS when evaluating the environmental performance of activities, processes, hardware and services. Environmental performance indicators are described in ISO 14031 (environmental management-environmental performance analysis of the ISO 14001 certification guidelines). Environmental performance indicators are required when evaluating the environmental performance of activities, processes, hardware and services and outlined that GSCM Performance Measurement can be done by considering and monitoring the environmental indicators. (Hervani , Helms , &Sarkis , 2005) The design of a GSCM/PMS should begin by defining the overall goal(s) of the system and also GSCM/PMS design should fit the environmental management systems of organizations. These environmental management approaches range from ISO 1400 to total quality management programs. In fact, there have been many situations, where players within a supply chain have been encouraged, or forced, to adopt environmental management systems, by external players. Part of the reason is that the evidence is growing; environmental management systems influence environmental performance. even though many do not guarantee environmental performance improvement. ISO 14000 environmental management system requirements are typically associated with one organization, thus, agreement on the types of systems for GSCM must occur ISO 14000 families of certification requirements and guidelines are environmental performance management guidelines codified as IS0 14031

Supply chain performance measurement methods &models

(Kurien, G. P., & Qureshi, M. N., 2011) Many literature surveys indicates development of a number of Performance Measurement Models since 1980s and Most of the models have gone through some empirical testing and some have only theoretical developments. The most widely cited performance measurement systems are the SMART (1988).The performance measurement matrix (1989), the Balanced Scorecard (1992), and the integrated dynamic PMS (1997). In the Indian context, there have been many attempts to measure the performance at the organizational level, but very few attempts have been made to measure the performance at inter-organizational level other proposed model also stated in Table.1 Lists of Performance Measurement Models

Name of the model	Period of Introduction
The ROI, ROE, ROCE and derivates	Before 1980s
The economic value added model (EVA) The activity based costing (ABC) – the activity based management (ABM,1988) The strategic measurement analysis and reporting technique (SMART,1988) The supportive performance measures (SPA,1989) The customer value analysis (CVA,1990) The performance measurement questionnaire (PMQ,1990)	1980-1990
The results and determinants framework (RDF,1991) The balanced scorecard (BSC,1992) The service-profit chain (SPC,1994) The return on quality approach (ROQ,1995)	1991-1995
The Cambridge performance measurement framework (CPMF,1996) The consistent performance measurement system (CPMS,1996) The integrated performance measurement system (IPMS,1997) The comparative business scorecard (CBS) The integrated performance measurement framework (IPMF,1998) The business excellence model (BEM,1999) The dynamic performance measurement system (DPMS,2000)	1996-2000
The action-profit linkage model (APL,2001) The manufacturing system design decomposition (MSDD,2001) The performance prism (PP,2001) The performance planning value chain (PPVC,2004) The capability economic value of intangible and tangible assets model (CEVITA,20041)	2001-2004
The performance, development, growth benchmarking system (PDGBS,2006) The unused capacity decomposition	2006-2007

Table .2 Lists of Performance Measurement Models (Kurien, G. P., & Qureshi, M. N., 2011).

Balance Score Card (BSC)

The Balanced score card (BSC) was developed in 1992 by Robert Kaplan and David Norton, as an innovative approach to performance measurement. The BSC enhances financial measures of past performance with measures of the drivers of future performance BSC proposes that a company should use a balanced set of measures that allows top managers to take a quick but comprehensive view of the business from four important perspectives.(i) How do we look to our shareholders at financial aspect? (ii) What must we look over at internal business perspective? (iii) How do our customers see us the customer perspective? And (IV) To improve continue and to create value. (Kurien, G. P., & Qureshi, M. N., 2011) proposed framework to apply for performance measurement. Figure -1

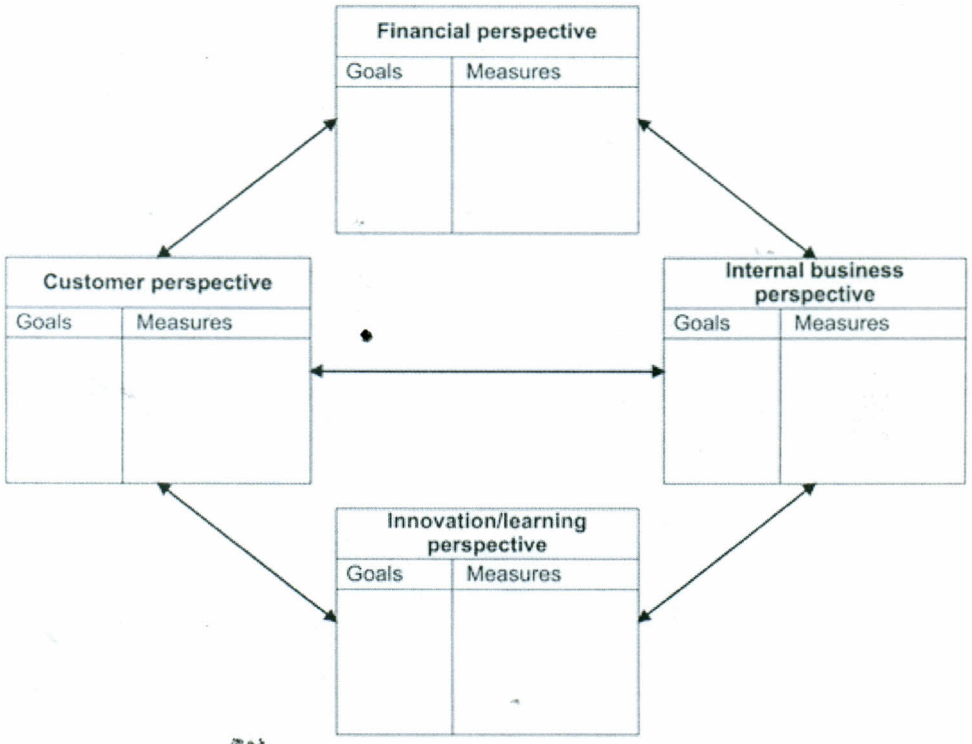

Figure 1: Balanced Score Card (Kurien, G. P., & Qureshi, M. N., 2011)

Analytical hierarchical process (AHP)

The AHP is a systematic procedure for representing the elements of a problem, hierarchically. AHP uses pair wise comparisons of attributes in the decision making process. Pair wise

comparison is used to see the priorities of each pair of criteria, indicating the strength with that one element dominates the other. It helps to quantify intangible and non-economic factors included within the factors affecting the decision. The AHP helps to rank and make decision during a rationale and systematic method (G. P., & Qureshi, M. N. (2011).

The Supply-Chain Operations Reference (SCOR) Model

The SCOR model was developed by the Supply-Chain Council (SCC) in concern to assist firms in increasing the effectiveness of their SCs, and to give new approach to SCM. The SCOR model provides a typical method oriented language for communication among supply-chain partners within the following decision areas: PLAN, SOURCE, MAKE, and DELIVER. SCOR model is designed as a tool to explain measure and evaluate any supply chain configuration. There are twelve performance matrices as a part of the SCOR model to live method performance. These twelve performance measures are grouped as (i). Delivery reliability; (ii). Flexibility (iii) Costs (iv) and quantitative SC performance measure, there will be an additional demand of Overall supply Chain efficiency measure incorporated within the SCOR model. (Kurien, G. P., &Qureshi, M. N., 2011)

Rationale of the Study

It has been synthesized from literature review that GSCM practices have a significant relationship with Green supply chain indicators and its impact on environmental and economic performance on Organizations .The literature review also suggests that GSCM is an important but under researched construct, research studies on Green Supply Chain Management performance measurement on organization were scant, and found manufacturing company required implying GSCM also found the need to identify Key performance measurement factors with respect to supplier relationship management, internal supply chain management and customer relationship management against strategic, tactical and operational levels and based on that level construct a supply chain performance measurement framework which helps to measure the Green supply chain performance.

Research Gap and need for the study

Review of literature shows that most of the study on Green supply chain management carried out on developed countries; lack of significant study observed in developing countries and its regions.GSCM is growing in importance to achieve environment sustainability and competitive advantages in organizations at economic level. The gap identified from the study is to develop and to apply an integrated Green supply chain performance measurement framework by studying key performance indicator.

The study can be conducted in two phases:

Phase1- Identification of Key performance factors with respect to supplier relationship management (Upstream Suppliers) by the case study of manufactures and its systems that practices GSCM.

Phase2- Development of conceptual framework based on identified performance measurement factors.

Objective of the study

1. To identify key performance measurement factors with respect to supplier relationship management (upstream suppliers).
2. To develop a conceptual framework based on identified performance measurement factors.

Research Methodology

Back Ground:

The literature research focused on major initiative taken to improve environment and economic sustainability tools for green supply chain practices applied Green Marketing, Green Purchasing, Green Manufacturing and Eco design of product and guideline of ISO 14001 for environment management sustainability.

At, First view assessing the factors responsible for GSCM performance appeared difficult at best, since no organization and firm will share their data or performance indicators.

Research Approach

The study on GSCM performance is exploratory in nature and it will qualitative and quantitative would be limited to Jaipur and conduct a case study of manufacturing company which practices Green supply chain or certified by environment system like ISO 14001 to follow guideline of environment sustainability.

Research Design

The study will be conducting in phases to identifying factors for performance measurement of green supply chain of manufactures of Jaipur. Based on field study of the manufacturing company selected and analysis of factors to be done which is followed by company, reviewing of collected data to be synthesized and development of framework to be carried out at second phase of the study. The review of subsequent data and apply a appropriate statistical tool will be followed by last phase of the study .The major factors responsible for green supply chain performance will identified by the framework.

Sampling method

Sampling will be done based on Purposive sampling method from target manufacturing company to collect the data survey to be done, The proposed sector of manufacturing companies of Jaipur would be Automobile & Electronics companies considered for survey at supplier level (up Stream Supplier) and total 60 – 70 samples to be collected for study.

Sample selection Criteria

The criteria for selection of company are supplier who are certified by ISO 14001 or supports them on environment issues if they will not have ISO certification.

Data Collection Tools

The case study approach combined with qualitative & quantitative methods, also multi research methods to be used in form of interviews, (Could be structured, Semi Structured or Group Interviews) observation and secondary data collection.

Tools for Data Analysis

Collected data will be analyzed using appropriate model/statistical tool in accordance to data type.

Scope of Study

Finding of the study will likely to benefit to enhance organization performance in order to achieve evolution and sustainability in Supply Chain system at Tangible (Business Performance) and intangible aspect (Environment Performance). It will provide a framework to implement successful green practices and its factors. It also ensures the minimum use of resources by applying the concept of waste management, recycling, reusing or remanufacturing of the product and its parts.

Limitation

Manufacturing sector and sample size due to distance and time constraints.

References

1. Wu, J., Dunn, S., & Forman, H. (2012). A Study on Green Supply Chain Management Practices among Large Global Corporations, 10(1), 182–194.
2. Anil S. Dube,& R. r.gawande. (2012). A Review on Green Supply Chain Management. International Journal of Computer Applications, iccia(10), 61–69.
3. Kudroli, K. (2014). Green supply chain management and environmental sustainability – a comparative study on global and Indian perspective, 2, 27–31.
4. Toke, L. K., Gupta, R. C., &Dandekar, M. (2010). Green Supply Chain Management; Critical Research and Practices. Green Supply Chain Management; Critical Research and Practices, 1–7.
5. Abu Seman, N. A. (2012). Green Supply Chain Management: A Review and Research Direction. International Journal of Managing Value and Supply Chains, 3(1), 1–18. http://doi.org/10.5121/ijmvsc.2012.3101
6. Rostamifard, M., Shekari, H., &Eslami, S. (2014). Identifying the Drivers of Green Supply Chain Management in Tile, 4(4), 851–860.
7. Duarte, S., Cabrita, R., & Machado, V. C. (2011). Exploring Lean and Green Supply Chain Performance Using Balanced Scorecard Perspective. International Conference on Industrial Engineering and Operations Management, 520–525.
8. Kumar, R., &Chandrakar, R. (2012). Overview of green supply chain management: Operation and environmental impact at different stages of the supply chain. International Journal of Engineering and Advanced …, (3), 2–7.
9. Mutingi, M., Mapfaira, H., &Monageng, R. (2014). Developing performance management systems for the green supply chain, 1–20.
10. Hervani , A. a., Helms , M. M., &Sarkis , J. (2005). Performance measurement for green supply chain management. Benchmarking: An International Journal, 12(4), 330–353.
11. Gardas, B., &Narkhede, B. (2013). Exploring the Green Supply Chain management: A Technical Review. Ijaiem.Org, 2(5), 441–450.
12. Bhool, R., &Narwal, M. S. (2013). An Analysis of Drivers Affecting the Implementation of Green Supply Chain Management for the Indian Manufacturing Industries, 242–2.

13. Kurien, G. P., & Qureshi, M. N. (2011). Study of performance measurement practices in supply chain management. International Business, Management and Social Sciences, 2(4), 19–34.
14. Ali, S. S., & Om, A. (1984). Exploring Green supply chain performance measures framework for Indian Manufacturing Practices Abstract .
15. Olugu, E. U., & Wong, K. Y. (2009). Supply chain performance evaluation: trends and challenges. American Journal of Engineering and Applied Sciences, 2(1), 202–211.
16. Deshmukh, S. P., &Sunnapwar, V. K. (2013). Development and Validation of Performance Measures for Green Supplier Selection in Indian Industries, (5), 105–109.
17. Ganeshkumar, C., & Mohan, G. M. (2015). Green supply chain initiatives manufacturing firms : complementary versus trade-off, *1664*(may), 53–62.

- **Chapter out Line**

Title of Thesis

Layout of Chapters

1. **Introduction**
2. **Review Of Literature**
3. **Method**
    - I. **The Study**
    - II. **The Design**
    - III. **The Sample**
    - IV. **The Tools**
4. **Result**
5. **Discussion**
6. **Summary**
    - I. **Conclusions**
    - II. **Suggestions**
    - III. **Implication of Study**
7. **References**
    - I. **----------Appendix**